



NIGERIA

Annual Report on the Agricultural Department for the year 1945

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Annual Report on the Agricultural Department, Nigeria, 1945

FOREWORD

I can do no better by way of foreword to my Report for the year 1945 than to quote the following extract from the Address by His Excellency the Governor which was made to the Legislative Council on 18th March, 1946. This extract provides a general survey of the work of the Department and constitutes a useful guide to the more detailed paragraphs which make up the main body of the Report.

"The European Staff of the Agricultural Department has been seriously reduced in number during the year. Captain J. R. Mackie, c.m.g., proceeded on leave prior to retirement and Mr D. H. Urquhart was appointed to the post of Director of Agriculture, Gold Coast. Mr A. H. Young, was promoted to be Deputy Director of Commerce and Industries and Mr J. West, Senior Botanist, was transferred to the Gold Coast. In addition, one officer was transferred to Zanzibar, one to the Development Branch of the Secretariat and one to the Gambia. One Senior Agricultural Officer was retired on grounds of ill-health and one Senior Botanist left Nigeria prior to retirement on health grounds. As an off-set to the list of these nine officers only two officers were recruited and arrived in Nigeria.

Every effort was made to maintain production of the principal export crops at a maximum level. The gradings of Palm Oil for the calendar year 1945 amounted to 116,312 tons compared with 141,000 tons in 1944. During the same period, gradings of palm kernels amounted to 299,039 tons, as against 331,000 tons in 1944. The decrease in palm products marketed was due mainly to a bad season, but was influenced by increased activity on crops for internal consumption.

The 1944-45 cocoa crop amounted to 85,000 tons, compared with an average of 100,000 tons for the previous five years. Prospects for the 1945-46 crop are more encouraging. The season was exceptionally late, the main marketing commencing in mid-December, 1945.

The 1944-45 groundnut crop amounted to 228,000 tons, a figure above the average for the previous sixteen years. The 1945-46 season will be better, the estimated tonnage to be bought for export being 300,000 tons. The rains were adequate and well distributed throughout the growing season.

The cotton crop in the Northern Provinces gave the low figure of 12,000 bales in 1945 while the Southern Provinces produced a further 4,850 bales. Comparative figures for the previous season show 16,200 bales and 5,700 bales respectively. The low figures were due to restricted planting in the Northern Provinces in connection with the drive for groundnuts, a poor growing season and competition from the internal weaving market.

Production of plantation rubber continues to increase, production figures for 1945 being 8,766 tons compared with 8,558 tons in 1944. Wild rubber has shown a big decline from 736 tons in 1944 to ninety-two tons in 1945. This was to be expected as trees were worn out and vines destroyed. But the object was achieved, wild rubber being produced when the shortage of rubber was most acute.

Forty-three tons of cured ginger were graded in the Kachia District in 1945 compared with thirty-one tons in the previous season.

Grading of potatoes from the Northern Provinces for the local market continued, 1,028 tons being graded as compared with 1,559 tons in 1944. As a result of this inspection, potatoes of "ware" quality only are marketed outside the producing areas of the Northern Provinces.

The Capsicums (Inspection for Export) Regulations, 1945, came into force on the 1st October, 1945, whereby Capsicums and Chillies intended for export must be inspected and graded by the Produce Inspection Branch of the Agricultural Department. Thus a step has been taken to ensure that chillies when exported will be of such quality that they will be accepted on world markets. By the end of 1945, 305 tons had been graded for export.

The Produce Inspection Branch of the Agricultural Department maintained the high quality of its work throughout the year and again it is pleasing to record that no major complaints were received from any of the countries to which Nigerian produce was exported. As the total tonnage involved was some 687,086 tons to a value of approximately £9,706,370 and as nine different products were inspected and graded, this is a tribute to the work of the European and African Staff. This branch of the Department continued to supply information required for the efficient running of the control schemes and undertook the inspection of local products such as rice, maize, etc., as and when required.

I referred in my Address of last year to the danger which might be anticipated from Swollen Shoot of cocoa, a disease which has caused widespread and rapid destruction of cocoa trees in the Gold Coast. The Cocoa Survey to which I then referred got fully into its stride in the Oyo Province in 1945, and by the end of September 37,963 farms totalling 80,415 acres had been surveyed. In an area centering around the villages of Badeku and Olanla there have been discovered 287 farms containing 150,000 trees affected by the disease. Many farmers are apprehensive of the motives attending a campaign designed to remove these trees, which may serve as a source of infection of much wider areas. The understanding and co-operation of owners of these farms will be necessary to ensure the success of this campaign aimed at eliminating the disease. Cutting out of affected trees has now begun.

The trends of trade following upon the cessation of hostilities have indicated the necessity for scaling down certain important lines of production, notably in pigs and potatoes in the Northern Provinces.

After an inauspicious start characterized in several northern areas by local drought at guinea corn planting time, the season was the best experienced for many years. Only from Ilorin and Niger Provinces, and to a lesser extent, Adamawa and Kabba, come reports of a below average season. Prospects in these areas are, however, little below average. Heavy August rains resulted in the flooding of large areas of swamp and river rice in Sokoto Province, which produces half of the Northern Provinces total crop, and in the Niger area of the Ilorin Province.

The prices of staple grain and roots have remained comparatively steady at last year's prices except for the short period of the June strike. There was, however, a slow but steady rise in the prices of commodities such as fish, meat, butter, rice and wheat.

There was a notable increase in the acreage planted to Guinea-corn; planting took place earlier and growing conditions were better than usual. There was a marked decrease in the incidence of Rosette disease of groundnuts.

The amount of "Allen" cotton seed distributed exceeded that of the previous season by 400 tons. Rainfall continued to be adequate up to the middle of October and the season was reminiscent of that of 1940. Markets were opened for buying on the 7th December, 1945.

Heavy June rains were responsible for damage to the early season crop of Benniseed in Benue Province. Purchases for the season amounted to 5,430 tons compared with 6,422 tons in 1943 and 7,175 tons in 1944.

The total of wheat purchased in 1944-45 amounted to 166 tons, and the price at Kano was £21 per ton. The crop for Nigeria is a highly specialized one grown principally in small irrigated riverside pockets in Sokoto, Katsina and Kano Provinces.

The harvest of the principal food crops generally has been above average. The millet crop yielded a little above average in Benue and Bornu Provinces and a little below in Sokoto, Zaria and Northern Katsina. In general terms the yield of Guinea-corn over the Northern Provinces amounted to 10 per cent to 25 per cent above last year's crop. The yield of rice has been below average as a result of poor planting rains and floods in the latter part of the growing season. Two small rice mills were operated in the Niger Province, where a total of 301 tons was milled.

On the southern borders of the Northern Provinces drought affected the yam crop, and yields were low in Kabba, South Niger and Benue.

For English potatoes the growing season was a favourable one in Zaria Province, but failure of early rains resulted in poor yields in Plateau Province. The strike affected the trade and resulted in a glut in the hands of growers, who suffered considerable financial loss. In August prices fell to as low as 2s 6d per case of 56 lbs, to the grower. Although this is a price which must be discouraging to growers it is noteworthy that railings for the twelve months ending in September, 1945, amounted to 1,447 tons compared with 1,333 and 1,255 tons in 1944 and 1943 respectively.

Railings of fresh vegetables from Kano amounted to 332 tons compared with 297 in 1944, and there were proportionate increases from other northern stations. The tonnage of onions railed from Kano and Zaria amounted to 1,111 tons and 529 tons respectively.

The brown sugar industry has been unable to keep pace with demand owing to the difficulty of obtaining delivery of crushers ordered from India. The total number operating remains at 160. Zaria production is estimated at 1,200 tons, Kano 120, and other centres 180. The local trade is well organized to handle a large increase in production, but has of course to compete with the chewing-cane trade.

Cattle railments from Kano for the twelve month period ending September 1945 totalled 32,000 head compared with 37,000 for the same twelve months of 1944. The strike was mainly responsible for the apparent falling off in trade, but Lagos meat prices were insufficiently attractive to maintain last year's totals for stall fed fat stock. For the full year railment of stall fed fat cattle dropped from 12,194 in 1944 to 6,290 in 1945. Daudawa cattle market changed during the year from an Army Supply Centre to a normal civilian market, but the system

of buying by weight continues. At Daudawa 2,175 head were handled by African traders during the year and railed to the Southern Provinces, whilst 1,410 head were railed for the Abeokuta and Agege Government Fattening Schemes, and a further 468 head were railed for the Lagos Emergency Food Supply.

The output from Agricultural Department piggeries showed a substantial increase over last year. The following figures summarise production over four half annual periods and give totals of bacon pigs railed to Messrs Holt's and the Cold Store, and slaughtered in the Northern Provinces as fresh pork. The number of pigs railed for bacon curing has exceeded a total of 10,000 since the piggeries were opened:—

	<i>Railed (Bacon)</i>	<i>Northern Provinces Slaughter (Pork)</i>
October, 1943 to March, 1944 ...	1,882	70
April, 1944 to September, 1944 ...	2,216	49
	4,098	119
October, 1944 to March, 1945 ...	2,366	192
April, 1945 to September, 1945 ...	1,956	185
	4,322	377

During the half year April to September 216 weaners were purchased from African owners for finishing at Bauchi, and 250 from Anchau. Private breeders railed 287 bacon pigs to the Cold Store during the period.

The following figures give some idea of the amount of milk retailed in various Northern Provinces Centres:—

<i>October, 1944 to September, 1945</i>	<i>Milk Sales Gallons</i>	<i>Cream Sales Gallons</i>
Kano	3,616	58
Zaria Station Dairy	4,224	1,512
Shika Dairy	3,803	190
Bomo Dairy	710	49

Kano milk supply is obtained mainly from the Native Administration Dairy Unit Farmers and it is retailed through a central organisation. Zaria Station Dairy buys milk from Fulani owned herds after testing, and this is retailed as cream and milk. The Bomo Dairy at Samaru is a Mixed Farmers' Co-operative concern, whilst Shika Stock Farm retails locally all milk surplus to requirements. During the above-mentioned twelve months' period a total of 5,741 gallons of sour milk was retailed in Kano. This trade was built up in collaboration with the Veterinary Department's cream buying station at Dabi.

Production of butter ceased at Kano Butter Factory when this unit was closed in February, 1945. Production for the previous twelve months amounted to 16,123 lbs.

The total number of Mixed Farmers in the Northern Provinces is now 2,547, some 300 more than recorded at the end of 1944. The principal deterrent to progress with mixed farming is the difficulty experienced in the purchase of sufficient suitable cattle for draught purposes to meet demands. Difficulties in obtaining ploughs in war-time has also limited numbers.

Interest aroused at the Daudawa Settlement has led to the extension of planning from purely agricultural considerations to all that may be summed up in the term Rural Development. The Emir of Katsina has agreed that hamlets in the district should be incorporated into the Settlement, entailing a pooling of farms, and subsequent re-division. The fact that prospective settlers readily agreed to these actions showed that they realize the financial and social advantages of being members of the settlement.

An improved cotton strain "Samaru 260" has reached the multiplication stage and the seed will soon be in the hands of growers. This strain has given high yields of lint and brokers' reports continue to be satisfactory.

Breeding for improved milk yielding strains of the White Fulani and Sokoto herds has been continued at Shika. Multiplication of the herd of tsetse resistant N'Dama cattle has been continued at Ilorin, and plans are in hand for expansion of this herd to enable further studies to be made by officers of the Veterinary and Agricultural Departments.

The Agricultural Engineer has been engaged on anti-erosion work on the department's farms in the Northern Provinces, and has been employed in an advisory capacity to Development Committees. Lack of heavy mechanical equipment has seriously handicapped his work. Suitable equipment is on order and is expected to arrive in 1946.

At Samaru Agricultural School eight students passed out, and twenty-four were in training during the year.

All over the Southern Provinces the early rains were exceptionally late in starting and the total rainfall generally has been appreciably below average. On the early crops the yam crop was the most seriously affected, and yields are variously reported to be from 10 per cent below average in Ogoja Province to 40 per cent below average in Oyo Division of Oyo Province. The early maize though late in maturing as a result of late planting, produced average to good crops in the Western Provinces, but in the Eastern Provinces yields were disappointing. Reports from most provinces indicate that there has been increased planting of Cassava and cocoa yams, and in the Western Provinces rather more late maize has been planted than usual and the crop is generally considered to be well up to average.

Further progress has been made by the Agricultural Chemists in studying the soil requirements of cocoa. It has previously been recognized that there are only certain kinds of soil in the Western Provinces having physical properties favourable to successful growth of cocoa, and that the supply of "plant-food" in the soil is not an important limiting factor in the main producing area. It has been possible to select land accordingly before making extensions to the main experimental cocoa farm during the last four years; planting has been much more successful than previously, and the new plots are now growing uniformly well. In proceeding with a reconnaissance soil survey of the Western Provinces much benefit has been derived from a two-months' visit to Southern Nigeria by the Soil Scientist of the West African Cocoa Research Institute, during which he clarified the relationships between the soils and rock types occurring in the area.

The principles which must determine the development of intensive systems of cultivation in the Crystalline-Rock area (the most fertile part of the Western Provinces) have been further elucidated by laboratory work and field experiments at Moor Plantation. It has been proved that some of the rotations followed

ed a long period have not included sufficient green-manure crops to maintain the nitrogen supply of the soil; on the other hand there is strong evidence that intensive cropping is possible without using fertilizers, provided that adequate amounts of plant material are grown and incorporated in the soil. Chemical investigations into the changes taking place in the surface soil under different cultural treatments have also been started at the Oil Palm Research Station (which is on the Benin Sands) and these are already providing valuable information.

The caterpillars of the moth of the Pink Bollworm of cotton attack the bolls and seed of Cotton. Until recently West Africa was one of the few cotton-growing areas in the world which was free from this pest. During 1944, it was found to be present in the Zaria area and in the Western Provinces; in the same year, French Entomologists discovered it to be infesting cotton in French Sudan, the Ivory Coast and Dahomey. More recently the Pink Bollworm has been found in French Togoland, where it is now a pest of major importance:

To date the infestation in the Northern Provinces is negligible; but it was serious in parts of the Western Provinces in both 1944 and 1945. The pest has been found to have a larval resting stage in cotton-seed in both areas. One of the main control methods is to uproot the plants, as soon as possible after harvesting is completed, and to burn them and all plant debris lying on the ground. The various Native Administrations in the Western Provinces were asked to persuade farmers to carry out this simple measure in early 1945, but the response appears to have been almost negligible and there is a heavy infestation this season in certain areas. At Moor Plantation, Ibadan, this control method was rigorously carried out and the 1945 infestation is much smaller than that of the previous year.

A study of the Pink Bollworm is being made at Ibadan; it has been found that *Hibiscus esculentus* (okra) is an alternative food-plant, so it is evident that this plant should not be grown in the vicinity of Cotton fields.

The resting stage in cotton-seed can be destroyed by heat treatment in the ginneries; but it seems useless to import the necessary machinery until it is proved that the farmer can be persuaded to carry out the simple method of uprooting and burning his plants after harvest.

The Agricultural Botanists have been engaged during the year in assisting to maintain high quality in Birdseye Chillies, and in rapid multiplication of a cocoa tree whose progeny has been shown conclusively to produce beans of above average size. This work is connected with plans to distribute seed of high yielding strains to farmers in areas where it is proposed to destroy cocoa trees at present infected with Swollen Shoot.

In addition to this work the Botanists have continued routine investigations with food-plants, cotton, and the Oil Palm.

The Development programme for 1946 envisages the establishment of experimental farms in Bornu and Adamawa Provinces. Agricultural Officers have been stationed in these provinces for a few years but their work has been largely confined to war-time production. Provision of these farms will enable these officers to concentrate more upon the fundamental culture problems which are necessary concomitants of all development work.

The programme involves the close study of the serious problems of fertility deficiencies and soil deterioration in the Eastern Provinces. At the Oil Palm Research Station in Benin Province comprehensive research continues upon the oil palm. The investigations undertaken there are believed to have a very direct

bearing upon the future of development in the Eastern Provinces. The experiments upon which a start has been made include a wide range of different cultural methods hinged upon the oil palm and aimed at ascertaining the best methods for growing an adequate supply of foodstuffs in conjunction with the palm.

The programme in the Eastern Provinces includes experiments with Cinchona and Pyrethrum, and the developing of farming systems in which commercial fertilizer may be utilized. Wide interest has been displayed in the successful establishment of piggeries in which the animals are protected against tsetse fly. Production of pigs as a means of increasing the supply of animal protein for the people will receive increased emphasis.

In the Western Provinces it is proposed to select farms for the multiplication of livestock, and for development of the poultry industry. To enable investigations to be continued by the Veterinary and Agricultural Departments with cattle of the tsetse resistant N'Dama breed it is proposed to import a number of selected animals from French Guinea during the year. It is proposed also to commence work on a general experimental farm in the Qndo Province.

One of the fundamental needs of the Department is a close liaison with the native producer and for this purpose trained African Staff are essential. Facilities for training will be increased during the year to enable Agricultural Schools to accommodate a larger number of students."

A. G. BEATTIE,
Director of Agriculture.

July, 1946.

INTRODUCTION

The maintenance and improvement of soil fertility continued to be the foremost concern of the staff at all Agricultural stations. In demonstrations to farmers, and in all experiments conducted at Research stations, soil fertility problems received first consideration. Livestock play a considerable part in the fulfilment of this policy, and are to be found on all Experimental Farms and on most Demonstration Unit Farms. Such unit farms are established at Native Administration Farm Centres, as well as at strategic points in the provinces where they are likely to be of value. They are of a size which can be worked by one farmer and his family. Experimental work connected with the improvement of livestock is conducted at Shika and Ilorin Stock Farms.

The tables at the end of this Introduction list the areas served by existing farms, and give the name of the place at which each is established.

During the war the time and attention of most of the staff of the Department was directed toward food production, with the result that programmes of experiment had to be confined to existing work and could not be expanded. It is now possible to give more attention to experimental work, and to those social and economic problems connected with land settlement and the improvement of farming methods.

Shortage of staff has continued to limit activities to such an extent that several stations, to which a European officer was formerly posted, have received only periodic visits. Extension work has had to be considerably curtailed. The Cocoa Survey in the Western Provinces which was commenced in October, 1944, has suffered particularly from shortage of staff. It has been found impossible to recruit the three Production Officers who were needed to carry out the field work, with the result that this important work has had to be done in the best way possible by depleted provincial staffs.

As a first step toward the establishment of a Regional office at Enugu, an Assistant Director of Agriculture was appointed in April, 1945, and was posted to the Eastern Provinces.

FARMS CONTROLLED BY THE AGRICULTURAL DEPARTMENT

NORTHERN PROVINCES

<i>Province</i>	<i>Government Experimental Farms</i>	<i>Native Administration Farm Centres</i>	<i>Unit : Experimental</i>	<i>Farms : Demonstration</i>
ADAMAWA	Yola	—	—	—
BAUCHI	—	Bauchi	—	Bileri Gombe
BENUE	Yandev	Adeiyongo	Adeiyongo Yandev	Tur Dongo Aduku Ajio Tsuwa
BORNU	Maiduguri	—	—	—
ILORIN	Ilorin	—	—	—
KANO	Kano	—	Kano	Mallam Maduri
KATSINA	Daudawa	Kafinsoli Daura	Kafinsoli Mani	Kazaure Kafinsoli Bakari Daura

NORTHERN PROVINCES—continued

Province	Government Experimental Farms	Native Administration Farm Centres	Unit : Experimental	Farms : Demonstration
PLATEAU	Riyom			Ganawuri
NIGER		Bida		
SOKOTO		Sokoto	Sokoto	Kaura
		Kwari		Chafe
		Gusau		Mareri
ZARIA	Shika	Zonkwa	Samaru	Samenaka
	Namati		Maigana	Maigana
	Maigana			

WESTERN AND EASTERN PROVINCES

Province	Government Experimental Farms	Native Administration Farm Centres	Unit : Experimental	Farms : Demonstration
ABEOKUTA		Abeokuta		
		Ipokia	Ipokia	
		Otta		
		Ilashe		
IJEBU ODE		Ijebu Ode		
COLONY		Badagry		
OYO	Agege	Oyo Farm	Moor Planta- tion (8 farms)	*Ede
	Moor Planta- tion	School	Ife, Oshogbo	*Ikirun
		Iseyin	Moniya	*Ogbomosho
				*CAGO
BENIN	Ogba	Auchi		
	O.P.R.S.	Aviele		
	Ilushi Experi- mental (rice farm)	Irrua		
WARRI				
ONDO		Ondo		
		Okitipupa		
		Ado Ekiti		
		Ikare		
		Oka		
		Owo		
OWERRI	Umuahia	—	Umuahia (2 farms)	
			Ahiara	
ONITSHA	Nkwelle	—	Nkwelle	
			Udi	
			Ufuma	
CAMEROONS	Bamenda	Santa		
	Esosong			

* NOTE.—These farms though included in this column are Demonstration plots and are not, strictly speaking, unit Farms.

THE 1945 SEASON

1. In the extreme north of the Country rainfall was above average. Elsewhere it was below average but on the other hand distribution was fairly good so that as far as the country as a whole was concerned the season could be regarded as average. Representative rainfall figures from Departmental farms are as follows:—

<i>Station</i>	<i>1945 Rainfall</i>	<i>1944 Rainfall</i>	<i>Average for past years</i>
Sokoto	36.96	25.52	33.13 (10 years)
Daura	30.69	23.35	27.02 (2 ")
Maiduguri	28.10	20.19*	24.14 (2 ")
Shika	46.35	29.90	43.62 (16 ")
Zaria	41.25	34.86	43.95 (21 ")
Yola	32.39	27.45	39.44 (28 ")
Bida	34.57	45.63	48.79 (8 ")
Nkwelle (Onitsha)	69.27	68.43	71.69 (12 ")
Umuahia	71.24	90.84	89.24 (23 ")
Ibadan	43.16	45.78	47.63 (35 ")
Agege	43.17	50.00	49.96 (18 ")
Esoosong	136.41	118.63	127.52 (2 ")

* Recorded at Maiduguri Airport.

ANIMAL HUSBANDRY

SHIKA STOCK FARM

Season and Crops

2. The precipitation at Shika was above average and taken all round the growing season was a good one. This is reflected in the yield of guinea-corn which averaged 1,551 lbs dressed grain per acre from 168 acres, with 20 acres averaging nearly a ton per acre. This is an exceptionally high yield.

Improvement of Pastures goes hand in hand with Stock Improvement and at Shika the collection and establishment of local pasture grasses was continued. There are now some ninety-six plots growing fifty-one different species. Observations on growth and time of flowering have been recorded during the season and certain plots were sampled fortnightly for yield and moisture content.

Stock

Milk yields showed no real improvement on those of 1944, which was the poorest year since 1934. Factors which were partly responsible were—

- (a) The major outbreak of trypanosomiasis which carried over from the previous year, and which continued through the first half of the year under review.
- (b) Removal from the records of good cows transferred to Lagos and Ibadan dairies.
- (c) Successive adverse seasons with lack of grass and poor sweet potato yields. (It should be understood that the effect, if any, of the good growing season in 1945, now under review, will be reflected in the figures to be published in the 1946 report.)

The following tables summarize the results:—

TABLE I.—GENERAL ANALYSIS OF LACTATIONS

Year	No. of Lactations Analysed	Av. No. of Days between Calves	Av. No. of days in Milk	Av. Yield per day between Calves	Av. Yield per day in Milk	Lactation Average
WHITE FULANI HERD.						
1945 ..	80	388.3	278.8	5.51	7.62	2,134.1
1944 ..	74	383.8	268.1	5.49	7.88	2,110.8
1943 ..	48	351.2	242.8	6.09	8.81	2,139.6
1942 ..	73	360.5	248.0	6.70	9.75	2,414.0
1937* ..	51	354.0	235.0	7.03	10.59	2,488.0
GUDALI HERD						
1945 ..	18	427.33	283.28	5.58	8.07	2,313.3
1944 ..	18	372.0	256.50	5.41	7.85	2,012.0
1943 ..	16	351.9	248.70	6.21	8.79	2,186.0
1942 ..	28	357.0	233.0	6.37	9.78	2,276.0
1937* ..	24	357.0	242.0	8.40	12.39	2,998.0

* N.B.—The figures for the year 1937 included in the above table were for the best season only.

TABLE II.—‘ CORRECTED ’ LACTATIONS

The correction factors adopted in my 1943 Report, have also been employed here. Briefly, ‘ immature ’ lactations are multiplied by the following factors to bring them to maturity:—

	Correcting P.D.B.C.	Correcting Lactations
1st Lactation	1.42	1.31
2nd Lactation	1.31	1.30
3rd Lactation	1.18	1.18
4th Lactation	1.09	1.10
Rest	1.00	1.00

No. of Lactations Analysed	Percentage 1st and 2nd Lactations	Percentage 4th and subsequent Lactations	Average Lactation	Average P.D.B.C.	Corrected Average Lactation	Corrected P.D.B.C.
WHITE FULANI HERD.						
1945—80 ..	47.5	38.75	2,134.1	5.51	2,553.83	6.7
1944—74 ..	50.0	17.60	2,110.8	5.49	2,569.0	6.69
1943—48 ..	64.6	6.20	2,139.0	6.09	—	7.53
1942—73 ..	58.9	30.10	2,414.0	6.70	—	8.09
1937—47 ..	51.0	33.30	2,488.0	7.03	—	8.30

TABLE II— *continued*

<i>No. of Lactations Analysed</i>	<i>Percentage 1st and 2nd Lactations</i>	<i>Percentage 4th and subsequent Lactations</i>	<i>Average Lactation</i>	<i>Average P.D.B.C.</i>	<i>Corrected Average Lactation</i>	<i>Corrected P.D.B.C.</i>
GUDALI HERD.						
1945-18 ..	27.8	33.3	2,313.3	5.58	2,634.9	6.45
1944-18 ..	77.7	11.1	2,012.0	5.41	2,541.5	6.84
1943-16 ..	75.0	6.2	2,186.0	6.21	—	7.80
1942-28 ..	39.3	42.8	2,276.0	6.37	—	7.61
1937-24 ..	37.5	37.5	2,998.0	8.40	—	9.81

It should be mentioned that fourteen Gudali lactations (44 per cent) had to be discarded, being either too poor due to sickness, or from foundation cows, and consequently the apparent rise in the lactation average should not be taken as definite improvement.

During the year the following outstanding lactations were recorded. Apart from Gudali Cow 134 with a lactation only fourteen gallons short of 500 gallons, there are no particularly good performers.

<i>White Fulani</i>				<i>Gudali</i>			
<i>Cow No.</i>	<i>Yield</i>	<i>Lact. No.</i>	<i>Sire</i>	<i>Cow No.</i>	<i>Yield</i>	<i>Lact. No.</i>	<i>Sire</i>
453	4,106 in 429 days	1	24				
289	3,786 in 340 days	5	19	133	4,858 lb in 366 days	3	12
308	3,674 in 337 days	4	19				
333	3,582 in 347 days	4	19	81	3,477 lb in 343 days	8	2
459	3,470 in 325 days	1	13				
408	3,435 in 355 days	2	13	111	3,063 lb in 429 days	5	3
454	3,326 in 336 days	1	24				
421	3,262 in 451 days	1	24	163	3,050 lb in 295 days	3	14
452	3,244 in 342 days	1	24				
205	3,171 in 338 days	7	13				
398	3,151 in 373 days	2	24				
295	3,121 in 254 days	4	19				
263	3,064 in 281 days	4	14				

It is worthy of note that twelve of the thirteen White Fulani outstanding lactations, are by the progeny of three bulls—Stock Bull twenty-four (strain 4) five Lactations; Stock Bull nineteen (strain 19) four Lactations; Stock Bull thirteen (strain 2) three Lactations. It is of further interest that each one is a member of a different proven strain, of which there are only five altogether.

The influence of the different sires on the year's lactations is shown in the following table. The correction factors have been employed in working columns V and VI, the justification being that otherwise the younger bulls, with consequently a larger percentage of 'immature' daughters, would be at a disadvantage to the old stagers.

TABLE III INFLUENCE OF SIRE'S ON LACTATIONS

Place	Sire	Strain	No. of daughters	Corrected Av. Yield 1945 Lactations	Corrected P.D.B.C.	Av. Yield 1945 Lactations	Average P.D.B.C.	Outstanding Lactations Table
I	II	III	IV	V	VI	VII	VIII	IX
WHITE FULANI HERD.								
1	24	4	18	3,201.65	8.38	2,450.5	6.08	5
2	13	2	9	2,935.38	7.48	2,414.9	6.00	3
3	19	19	13	2,785.46	7.23	2,584.4	6.76	4
4	21	21	2	2,779.15	8.61	2,526.5	7.90	
5	23	2	5	2,501.79	7.13	1,915.0	5.16	
6	22	2	5	2,486.12	6.30	1,897.8	4.44	
7	17	17	4	2,224.46	6.35	2,002.5	5.75	
8	14	2	10	2,037.59	5.26	1,820.7	4.74	1
9	25	17	2	1,944.80	5.63	1,496.0	4.30	
10	20	20	3	1,906.88	4.79	1,616.0	4.07	
11	4	4	3	1,886.85	4.59	1,670.7	4.10	
12	26	2	2	1,585.10	4.89	1,210.0	3.45	
13	12	12	2	1,525.25	4.18	1,443.5	4.00	
14	18	18	1	1,469.00	3.50	1,469.0	3.50	
15	8	8	1	1,325.00	3.80	1,325.0	3.80	
Herd Average ..	—	—	—	2,553.83	6.74	2,134.0	5.51	
GUDALI HERD								
1	12	12	2	4,278.22	9.58	3,841.00	8.80	1
2	2	2	1	3,477.00	4.90	3,477.00	4.90	1
3	10	10	1	3,209.80	7.30	2,918.00	6.70	
4	3	3	1	3,063.00	5.30	3,063.00	5.30	1
5	14	2	3	2,800.67	8.10	2,322.30	6.70	1
6	15	2	1	2,509.60	7.21	1,930.00	5.50	
7	13	13	3	2,467.31	6.44	1,751.30	5.33	
8	7	7	2	2,206.50	4.40	2,206.50	4.40	
9	16	2	2	1,979.41	5.11	1,511.00	3.60	
10	6	6	2	1,718.67	4.84	1,456.50	4.10	
Herd Average ..	—	—	—	2,634.91	6.45	2,313.30	5.58	

Sickness and Disease.—Trypanosomiasis.—In the latter half of 1944 and first six months of 1945 there was a serious outbreak. Extensive clearing along local streams was undertaken, and the Sleeping Sickness Service posted a trained Mallam for routine examination of blood slides. The drug Phenanthridinium which was in use towards the end proved most effective. The following table of comparison between the two breeds is interesting in that from it, the Gudali appears more susceptible.

TABLE IV

	No. Positive	No. Deaths	Average Total Herd	Percentage Susceptibility	Percentage Mortality
White Fulani	71	9	548	12.95	1.64
Gudali	47	11	211	22.30	5.20

Ringworm.—A fairly large scale outbreak occurred and spread rapidly even in the dry season. Cases were isolated and treated at first with strong Iodine. Larger young stock were dipped once a week, and from the striking results obtained, it would appear that routine dipping of young calves would go far to prevent such an epidemic, or at least check an outbreak in its early stages, and it is proposed to build a calf dip near the calving pens in 1946.

Scour.—The position continued to be most satisfactory throughout the year, and the disease at last appears under control. There were only twenty-two cases during the year, of which twelve died (6.5 per cent of total births). Sulphaguanidine was used on the last three cases, all of which recovered.

Experiments.—Six experiments on feeding and rearing of stock were carried out. Blood Meal proved its value both to young growing stock, and milking cows—the latter in the dry season only, which suggests that the green grass in the rains provides a sufficiency of protein for this type of animal. An experiment to test the possibility of suckling cows six days each week, and still get a fair idea of their lactation yields by hand milking on the seventh day, has been going on for over six months. The suckled calves make for superior growth and normal diseases associated with bucket feeding are almost non-existent, and if it can be proved at the end that one day-a-week recording gives a satisfactory lactation yield figure, then this method of rearing would be adopted.

ILORIN STOCK FARM

3. *Season and Crops.*—Rainfall at Ilorin was much below average. The total fall was 39.4 inches compared with the average of 50.19 inches for a period of forty-one years. Despite this the yield of guinea-corn was satisfactory. Experimental cropping was confined to work on the main rotation, as well as on the treatment of pastures.

Stock.—Multiplication of the herds of West African Shorthorn, and N'Dama cattle continued to be the main purpose of the work at Ilorin Stock Farm. The N'Dama continues to be a shy breeder but shows the best general performance in resistance to trypanosomiasis. Some improvement in fecundity in this herd resulted from running a bull with the cows night and day rather than only by day as in former practice. Grading of the Gambia and Borgawa herds was continued, by the servicing of all cows by N'Dama bulls.

There was a net increase from 246 to 270 of twenty-four animals in all the herds. Fourteen animals were lost from the effect of trypanosomiasis. Among home-bred stock there was a general increase in the number of animals exhibiting the tick-borne diseases, Piroplasmosis and Anaplasmosis. Routine inoculations were given by Veterinary staff against Blackquarter, Rinderpest, Pleuro-pneumonia, and Anthrax.

The distribution of improved bulls in the Southern Provinces was continued, nine being sent to outstations during the year.

Records were kept of the temperatures of Ilorin bred stock up to 300 lbs live weight. Measurement records were kept of stock under three years of age, and all animals were weighed quarterly.

DAIRIES

THE YABA DAIRY

4. During the year thirty-seven cows in milk were sent from Zaria to the Yaba Dairy, and twenty-five cows were returned to the North. The output of the dairy was curtailed as a result of action taken to test all stock to eliminate an outbreak of contagious abortion in the herd, and to some extent by the difficulties occasioned by the strike. Total milk sales for the year amounted to 10,018 gallons.

THE EXPERIMENTAL DAIRY—MOOR PLANTATION, IBADAN

Some 2,500 gallons of milk was produced at this small dairy, despite conditions resulting from the strike, and from the testing of stock. The cost of operation was covered by revenue.

NORTHERN PROVINCES DAIRIES

A scheme was commenced by Kano Native Administration whereby peasant farmers in the City area were advanced cows on loan, the cost to be repaid from proceeds from the sale of milk. The farmers sell their milk through the Administration, and a monthly figure of some 3,000 bottles was reached. A sour milk trade for the benefit of the public was started at Kano, and more than 3,000 gallons was sold during March to September, 1945. Cows were purchased from Fulani owners in Katsina and Sokoto Provinces, tested at Samaru farm, and railed to Yaba and Ibadan dairies.

POULTRY

5. On Government Farms in the Northern Provinces small flocks of Rhode Island Reds and Australorp Fowls were kept, so that cross breeding could be conducted with native hens. The male progeny was issued to farmers to enable them to grade up their flocks.

Multiplication of Australorp and Rhode Island Red birds continued on a reduce scale owing to the absence on leave of the officer in charge. 374 birds, 2,438 hatching eggs and 7,564 table eggs were sold. 1,431 eggs were incubated, some being outbred eggs to produce birds for sale and some being for the maintenance of inbred lines for selection work.

Line-breeding of selected Nigerian strains continued as described in my 1944 report.

Some black leghorn eggs were imported by air and the chickens show considerable promise.

New apex houses incorporating cold brooders for young chicks have replaced the old kerosene heated brooders and old apex houses. The saving on kerosene alone has almost paid for the new houses, and mortality in the first twelve weeks, formerly the greatest handicap to multiplication, has fallen to less than two per cent. Incubator management has also been improved by starting at 103 F and dropping to 101 F at the third week, instead of the reverse. The percentage of fertile eggs hatched has risen from 61 per cent in 1943 to 71.3 per cent in 1944 and to 76.3 per cent in 1945.

Health of the flock has been very good except for an outbreak of cholera resulting in the death or culling of fifty-one birds. The entire flock was treated with vaccine obtained from Vom. The outbreak occurred in October when there was an exceptionally heavy rainfall totalling 12.55 inches.

Preliminary steps were taken to select a site for a new Poultry Research and Breeding station to be established in the Oyo Province.

PIGS

6. It was found during 1945 that the target of 400 bacon pigs per month which had been reached at the end of 1944 was in excess of demand and brought about over-production. Accordingly the piggeries at Zoukwa were closed and the output of the other piggeries reduced. In addition privately-owned piggeries increased their output to an extent that made it possible appreciably to reduce production at Government Farms. Foundation breeding stock has previously been issued to a private enterprise near Kano which aided by Departmental advice had built up a business which disposed of 620 bacon pigs in 1945. Also several African breeders had entered the industry.

At Samaru farm the purchase of weaners from farmers in the Anchau settlement was continued. A total of 623 weaners were bought at rates ranging from 8d per lb for those over 20 lbs to 6d per lb for those of 20 lbs or under. Some 1,493 pigs were disposed of from the Samaru piggeries. From Shika Stock Farm some 740 head were sold. The time taken to bring a litter to a marketable bacon pig of 180 lbs averaged twenty-seven weeks at Shika.

GOATS

7. It has been found by experiment in several provinces that Nigerian goats do not fit well into a system of farming which necessitates their being kept under restraint. Some improvement has been effected by the selection of individual animals, but so far it has appeared that unless they are kept under conditions of open range losses from disease and particularly from the effects of internal parasites are inevitably excessive.

FODDER AND PASTURE

8. Pasture research was continued on observation plots at Samaru, Ilorin and Ibadan, with local and imported grasses. Pasture blocks were established at Shika Stock Farm, and experiments in the control of grazing were conducted at Bamenda.

MIXED FARMING

9. The number of recognised practising mixed farmers at the end of 1945, is reported to be 2,547. This represents an increase of 300 more than at the end of 1944. Many new applications were received, together with cash deposits, but only a limited number of farmers could be established because of the difficulties in obtaining ploughs and suitable cattle in sufficient numbers. Encouragement was given to the formation of Youth Clubs in which young farmers are issued with young stock on suitable repayment terms, in order to provide an opportunity for them to become familiar with the handling of stock. Some farmers were issued with stock for fattening, for by this means a number who do not use a plough can be induced to make manure for their farms. By doing this several farmers have made useful monetary profits upon sale of the stock, as well as indirect profits from improved crops. Cattle auctions were conducted weekly in Kano by Veterinary and Agricultural Officers. Mixed farmers took advantage of these by selling their fattened beasts. More than 400 cattle were issued by the Department to Kano farmers during the year. In Zaria Province 314 mixed farmers owned 819 head of cattle. It is recognised that the figures given above are

modest ones, but they are encouraging when it is appreciated that few of these farmers had ever previously owned cattle, and would never have been able to do so, but for the facilities provided by schemes to encourage mixed farming.

The following table shows the progressive rate of the development of mixed farming:—

Total Number of Mixed Farmers in the Northern Provinces, 1945

Year					No. started during the year	Failures during the year	Total continuing at the end of the year
1928	..	..	..	..	3	—	3
1929	..	..	..	..	9	5	7
1930	..	..	..	..	13	3	17
1931	..	..	..	..	31	4	44
1932	..	..	..	..	71	7	108
1933	..	..	..	..	84	19	173
1934	..	..	..	..	139	14	298
1935	..	..	..	..	348	25	621
1936	..	..	..	..	474	41	1,054
1937	..	..	..	..	445	66	1,433
1938	..	..	..	..	321	156	1,598
1939	..	..	..	..	231	270	1,559
1940	..	..	..	..	483	222	1,820
1941	..	..	..	..	413	202	2,031
1942	..	..	..	..	297	366	1,962
1943	..	..	..	..	406	243	2,125
1944	..	..	..	..	512	390	2,247
1945	..	..	..	..	590	290	2,547

SOIL CONSERVATION

10. The Agricultural Engineer continued with anti-erosion measures on the main Government Farms, and undertook the training of African staff. Other departmental officers advised farmers on elementary measures of soil protection. In connection with the Eastern Provinces soil conservation scheme sites were obtained in the vicinity of the Agulu Centre in Awka Division, for Agricultural experiments in erosion control and soil regeneration.

CHEMISTRY SECTION

11. *Soil Investigations.*—The Agricultural Chemist was occupied during 1945 with studies of soil types in the field, the supervision of laboratory analyses, and experiments on maintenance of fertility. Analyses of soil samples collected previously in studies of profiles in the cocoa area, in the Eastern Provinces, and at Bamenda, and of a series collected by an Agricultural Officer at the end of 1944 along the future route of the Calabar-Mamfe road were completed. Field studies of soil profiles had already been given prominence, but were more systematically developed during an extensive tour of Southern Nigeria in the company of the West African Cocoa Research Institute Soil Scientist, Mr C. F. Charter. Knowledge of the soil types occurring in Ogoja Province was obtained for the first time. The relationships between rock and soil types in the cocoa area of the Western Provinces were considerably clarified. Since thorough soil mapping of any large proportion of the country is not likely to be possible for some years, a form of reconnaissance survey consisting of the schematic recording of detailed observations along motor roads, on rocks, soils, topography, and vegetation and crops, has been started. In many cases a close connection has been found between differences in

these features. For example, a few years ago a common view of the soil requirements of cocoa in this area was that land that had been under forest for some years previously would be in a suitable condition for cocoa-planting; some truth has been found behind this idea, in that in the northern (drier) part of the cocoa belt sandy and gravelly soils (*e.g.*, an extensive area of granite soil east of Ikirun) tend to be occupied by fire-resistant savannah woodland at the present time, whereas those with more favourable moisture relationships (*e.g.*, red loam derived from micaceous schist west of Ikirun), on which it may be possible to establish cocoa, tend to support forest or revert to thicket after farming.

Oil Palm Research Station.—Examination of surface samples and samples from a number of profile pits at Oil Palm Research Station suggests that, although the whole area has been used for farming and was covered with secondary forest of varying age, the soil is still nearly at the high level of fertility built up by the primeval forest. It is of the red "Acid Sands" type, characterised by a great depth of porous and thoroughly weathered red subsoil. The salient feature of the profile data is the sharp transition from the surface layers rich in bases liberated by decaying leaf-litter, to the highly acid subsoil containing very little plant food.

Knowledge of the changes brought about in the surface soil by different methods of cultivation is of fundamental importance in such conditions. Much chemical work has therefore been undertaken in connection with the 1940 Cultural Experiments at Oil Palm Research Station. Regular soil-nitrate determinations, started in March, 1944, were continued until the middle of June, 1945, when the laboratory was temporarily closed. Analyses of composite surface samples from all plots in the two experiments, collected in October, 1941, and again in February, 1945, have been carried out at Ibadan.

The first experiment compares the following methods of establishment of oil palms:—

- A1. Intercropping for two years (1940-41), followed by C.
- A2. Intercropping for two years (1940-41), followed by E.
- B. Continuous intercropping.
- C. Bush growth cutlassed to a height of 2 feet.
- D. Bush growth cutlassed once a year.
- E. Leguminous cover (*pueraria* and *calopogonium*).

There continued to be the markedly higher nitrate-content reported last year, under the leguminous cover as compared with the other treatments, whilst Treatment B was distinctly the lowest in this respect, except on a few occasions, closely followed by A1. But the growth of the palms has been best in Treatment B, and A1 and A2 also had an initial advantage. Continuous intercropping is an approach to clean weeding; the relative absence of competition for moisture and nutrients, as compared with the effects of thick covers, must be supposed to account for the more rapid growth. It might be expected that intercropping would eventually cause more rapid soil exhaustion-diminution in the organic-matter supply and loss of bases through leaching. However, the chemical analyses show definitely that there has been no change in any of these treatments since 1941.

Moor Plantation Experiments on Maintenance of Fertility.—In my report last year it was pointed out that yields were falling on the 40 acres of the "Four Course Rotation Blocks". From 1922-33 these blocks maintained fertility well with one cash crop and one sole green manure crop, dug in green, each year. From 1934 onwards various much more intensive rotations were practised, of which the

main one included seven cash crops in four years, with only three green manure crops, all of them interplanted in the cash crops, and two of them burned and moulded up into the ridges instead of being ridged in green.

Experiments with nitrogeaneous manures reported in 1944 showed lack of nitrogen supply, presumably due to falling organic matter content. The following figures which are the average values for all the rotation blocks show that such a fall has taken place in the topsoil:

	1934	1945
% Carbon	0.53	0.42
% Nitrogen	0.046	0.036

No change in acidity has occurred.

Further experiments with cotton and late maize in 1945, confirmed the shortage:—

Cotton—unmanured	54 lbs/acre
+ 3 cwt sulphate of ammonia	129 lbs/acre
Maize—unmanured	131 lbs/acre
+ 2 cwt sulphate of ammonia	192 lbs/acre

All yields are low, owing to a very adverse season, but the indications are clear, and were even more obvious in the general appearance of the crop.

During the course of the year it was decided that these rotation blocks should become available for fundamental manuring experiments, and the opportunity was taken to revise the rotations so that there would be a possibility of even unmanured plots regaining some of their lost fertility. The number of cash crops was reduced to five, with two mucuna crops grown alone and dug in green, and two cowpea crops interplanted in the main cash crops. The new rotations are strictly practical but have been simplified to facilitate interpretation of manurial trials and to give, for instance, information on the yield of yams after a variety of previous crops.

BOTANICAL SECTION

NORTHERN PROVINCES

12. At Kano, in a groundnut trial consisting of twenty-five strains, the strain MD 351 gave highest yield, at 1,460 lbs kernels per acre. In an Upland rice trial at Zaria "Agbede" gave a yield of 640 lbs per acre. In a guinea-corn trial at Zaria three varieties "Light Mori", "Dark Mori" and "Kaura" gave yields of more than 2,000 lbs dry grain per acre.

In an experiment to test two different methods of smut control in guinea-corn, a recommended Indian method was compared with our normal practice of dusting the seed with copper carbonate. The Indian method consisted of soaking the seed in cold water for four hours and then drying in the shade. Seed from badly smutted heads were used in the experiment. The results were significantly in favour of our own practice. In the resulting crop the percentage of smutted heads were as follows:—

	Per cent
Treaded with Copper Carbonate	1.8
" " Water	32
Control (untreated seed)	39

The seed treated with Copper Carbonate yielded a significant increase of 20 per cent over "Control", the yield being 1,430 lbs per acre.

In a Zaria soya bean trial of sixteen varieties, yields of over 600 lbs per acre were obtained from eleven varieties, and over 900 lbs per acre from four varieties, namely "Dixie", "Misc 33 Dixie", "Malayan", and "Benares".

SOUTHERN PROVINCES

COTTON

A Latin Square test of the eight sub-strains of Ishan A selected in the previous season on lint and ginning out turn failed to show any significant differences in yield among these. After the time of sowing until the beginning of November, there were never more than six dry days in succession, and the exceptionally heavy rain of October caused a rather rank growth. A number of plants were somewhat stunted, and their flower buds were shed. The yield of the plot was 245 lbs seed cotton per acre.

CASSAVA

In the search for a cassava immune to mosaic, healthy hybrid seedlings were deliberately infected by budding from diseased plants; twenty-four buddings were successful, and in each case the seedling was thereby infected.

Further pollinations were made, repeating on a larger scale the combinations that have so far given the most promising progenies. A part of the seed produced was sent for trial in the Northern Provinces; it is assumed that the disease is not transmitted through the seed, and qualities other than their resistance to mosaic may there be of value.

Reports from various stations in the south indicate that generally the resistant hybrids so far distributed are less susceptible to mosaic than the varieties in local use; and they appear to be acceptable as food.

NIGERIAN BIRDSEYE CHILLIES

Seed from 100 plants selected last year were sown in the nursery, and 1,000 seedlings were transplanted to the isolated selection plot, once again, 100 plants were chosen for seed for next year's selection plot, and seed from the remaining 900 plants is available for multiplication for distribution to farmers in 1947.

Surplus seed from the selection plot of 1944-45 was sent to the Agricultural Officers at the Farm School, Oyo, and at Yandev, to sow seed multiplication plots; only one acre was grown on Moor Plantation; this produced 720 lb dried chillies, rather above the average for the previous crops:—

1942	...	...	492 lb.
1943	...	...	886 "
1944	...	...	540 "
1945	...	...	720 "

To facilitate supervision, it has been decided that in future the bulk of the multiplication will be carried out at Moor Plantation.

Messrs. John Holt & Co. suggested that a smaller Birdseye Chilli would be more acceptable in the United Kingdom; and in addition to the breeding programme already undertaken, a small cultural experiment was carried out. The experimental treatment consisted in the removal of all fully developed fruits, while these were still green; after this first plucking the plants were left to continue growing and fruiting. Measurements showed that the treated plants produced slightly more fruits, but only at the first harvest was there any indication that the fruits were any shorter than normal. The average length of the fruits on the control plants decreased from 1.2" at the first harvest to 1.0" at the last.

In breeding for increased pungency we are handicapped by the quality of this attribute, which cannot at present be measured exactly. However, selection was continued; seeds have been kept from chillies that are apparently more pungent than the birdseye type, while retaining the desired colour and size—though this is combined with a somewhat shrivelled appearance. So far as size is concerned, crosses with small chillies from Funtua have reached the F1, and it is too early to say what is likely to appear in the next generation; it seems that the troubles usual after inter-specific crosses may arise.

Vegetable Seeds.—Difficulties in the supply of seeds kept down the weight distributed this past year, although the volume of correspondence was large. Supplies from the United States were cut off by the termination of the mutual aid facilities at the end of the war and the subsequent necessity to conserve dollar exchange. This also affected seedsmen in the United Kingdom, to whom we looked for seeds; their difficulties, and difficulties in connection with transport, meant that we could not satisfy the demand for dry season plantings in the Northern Provinces, where nearly half the seed is used. At the same time, the local production of seeds fell short of expectation, and the quality of some that were distributed was criticised.

A small consignment of seeds grown in India was obtained through Messrs. Suttons, and these were distributed for trial at Oyo Farm School, Agege, Moor Plantation, Ibadan, Riyom, Maiduguri and Kano.

Distribution over the past four seasons has been:—

1942-43	563 lb.
1943-44	1,254 ..
1944-45	1,047 ..
1945-46	603 ..

Cocoa.—The distribution of rainfall at Moor Plantation during 1945, following six weeks of dry weather at the end of 1944, led to a virtual failure of the light crop; and the main crop was delayed, though not much reduced. Plots on the more sandy soils suffered severely during the prolonged dry season, and the trees took some time to recover. Several trees that had been bearing for some years were so damaged that they produced no crop; but later in the year conditions improved greatly. Capsid bugs were kept in check by the dry conditions early in the year.

Ibadan Native Administration Cocoa Farm.—In 1945, there was planted a second progeny trial, similar to that planted in 1942, but using different selections; at the end of the dry season only 15 per cent of the stands had died, which is very much lower than in the earliest plantings at INA. The selections used were as follows:—

<i>Selection</i>	<i>Origin</i>
(i) T38	Self-fertilised seedlings of the original selection at Moor Plantation, common to most trials planted since 1930.
(ii) CD208	Self-fertilised seedlings of two progenies of
(iii) CD302	T38.
(iv) CF47	Self-fertilised progeny of T2119 (ICS4) from River Estate, Trinidad.
(v) CF56	As above, of T5584 (ICS1).

<i>Selection</i>	<i>Origin</i>
(vi) CF270	Progeny of T969 (Harland's selection).
(vii) T38 × CF47	Crosses between T38 and the three Trinidad selections.
(viii) T38 × CF56	
(ix) T38 × CF270	

Progeny Trial No. 2 is laid out as a 9 × 9 Latin Square, with nine trees per plot, and it is surrounded by a single row of T38 to reduce the edge effect.

In paragraph 61 of my Annual Report for 1944-45 there is a note on the effect on cocoa of soil and drought; the remarks made there have been confirmed by a series of pits, some 14 feet deep, dug for the Senior Chemist. The frequent occurrence of the concretions in the original 20 acres at INA help to explain the difficulties in the establishment in some plots; of 4,851 stands only 2,754 trees are in bearing—some 57 per cent over all, though it so happens that in the plots planted at 12' × 12' only 48 per cent are bearing.

Agodi Cocoa Farms.—There was virtually no light crop at Agodi, on account of the dry weather, but the main crop was only little below normal, though it began later than usual. Recorded yields so far are:—

1941-42	1942-43	1943-44	1944-45	1945-46	
637	730	724	609	409	lb. dry beans/acre.

Replanting of the vacant spaces continues, and the shade trees have been supplied regularly; some of these—particularly the Balsa wood trees, have now penetrated the cocoa canopy, and are spreading above it.

Cocoa Propagation.—During the course of the year two double rows of nine concrete propagating bins, each 3' × 3', were built by the Public Works Department. 796 cuttings were set, and 115 leaf-bud cuttings, and eighty-three new plants have been produced; various treatments were tried and the best combination produced 42 per cent cuttings fit for potting, as against the average for the period of 14 per cent.

Swollen Shoot.—Cocoa Survey funds were used to construct an insect proof cage. In this, seed of cocoa has been sown regularly to provide stocks on to which can be grafted, in conditions of safety, buds from trees infected with swollen shoot disease in the various manifestations occurring in Nigeria; here they are grown side by side, so that the comparative effect on the stocks may be noted. These stocks are also being used to check the doubtful cases, where the existence of virus is uncertain. This work is being undertaken in conjunction with the Agricultural Officer in charge of the Cocoa Survey, who brings in budwood collected during his field work.

Kola.—At present greatest interest is in the white kola plots. Both at INA and at Nkwele the yields were below the average:—

	1940-41	1941-42	1942-43	1943-44	1944-45	1945-46
INA	291	882	1,150	1,516	299	374
Nkwele	—	114	621	585	2,475	364

All the nuts produced during the season at Nkwele were white, and so far the only red nuts produced there were the five in one pod in the previous season. The hypothesis that this was due to cross-pollination with some wild kola is borne out by the higher proportion of coloured nuts produced at INA, where the adjoining forest contains many species of *Cola*, any of which might be responsible; at INA last season 325 nuts were white, twenty-one pink, and twenty-eight red, out of the 374.

The following species of *Citrus* were established in the nursery to provide a representative collection for planting out in D6:—

C. heterophylla, *C. caricifolia*, *C. reticulata*, *C. cordifolia*, *C. togoensis*,
C. verticillata and *C. rostrata*.

Citrus.—Observations were made on the incidence of gummosis and on stock-
scion compatibility both at Moor Plantation and at other stations; in the course of
these, very light attacks were noted on Tangelos, which have been reported to be
resistant to the disease in the United States. In this connection, material is being
prepared for a trial of stocks for resistance to gummosis.

Material is also being prepared for a new citrus rootstock trial at Umuahia, as
the original plot has not done well; fresh land is available. The early experiments
at Moor Plantation and Agege have shown that the single tree is too small a unit for
an experimental plot, and four trees will be used at Umuahia.

Mangoes. The propagation of introduced mangoes was continued during the
year, and thirty-five budded trees are ready for distribution to other stations. Bud-
wood was sent regularly to various other stations for use in the nurseries, to provide
trees for sale to the public.

The following yields were recorded during the year:—

Variety					Trees Bearing	Total Fruit	Damaged Fruit	Fruit per Trees
Julie	..	..	..	..	8	2,027	1,239	253
Alphonse	..	..	..	..	5	611	369	122
Peter	..	..	..	..	6	201	144	33
Borsha	..	..	..	..	1	48	48	48

The fruit damaged, either by fruit-piercing moths or by bacterial disease, is 62.4
per cent of the total number harvested.

ENTOMOLOGICAL SECTION

13. *Locusts*.—Nineteen swarms of the Desert Locust, *Schistocerca gregaria*,
Forsk., were reported from the Sokoto and Bornu Provinces between May 22nd and
June 19th, 1945. Breeding did not occur in Nigeria and no damage to crops
was reported.

No swarms of the Desert Locust have been reported from any part of West
Africa since early October, 1945, and it seems probable that the outbreak in the
Western area of this species' range is coming to an end. There are, however, still
a few swarms in Morocco and Algeria.

Pink Bollworm of Cotton.—This serious pest of Cotton was first found to be
present in West Africa in 1944. It is abundant in the Oyo and Abeokuta Provinces
and was responsible for considerable damage to the 1945-46 crop; but it is still
rare in the American cotton area in the Katsina, Zaria and Kano Provinces.

One of the main control methods is to uproot the plants, as soon as possible
after harvesting is completed, and to burn them and all plant debris lying on the
ground. Efforts to persuade farmers in the south-western area to carry out this
simple control measure have given entirely negligible results and there will probably
be another heavy infestation on the 1946-47 crop in this area.

It has been found that okra, *Hibiscus esculentus*, is an alternative food-plant of the Pink Bollworm and also that there is a larval resting stage in the south-west as well as in the north.

IRRIGATION

14. Pending the arrival of an Irrigation Engineer, hydraulic data were collected for the Edozbigi-Uwoya compartments in Bida Division of the Niger Province. Progress has been made in Bida and Abuja Divisions with the establishment of small irrigation schemes, by the construction of diversionary dams on streams. These activities were responsible, in large measure, for the increased production of rice in the Niger Province.

AGRICULTURAL EDUCATION

SCHOOL OF AGRICULTURE, IBADAN

15. The staff of the School of Agriculture at Ibadan was considerably augmented and at the end of the year consisted of:—

- 2 Agricultural Officers.
- 2 Nigerian Assistant Agricultural Officers.
- 1 Gold Coast Assistant Agricultural Officer on secondment.
- 3 Agricultural Assistants.
- 1 Master—Grade III.

Specialist officers continued to lecture on their particular subjects. The area of teaching farms was increased and additional quarters for students were erected.

Diploma Classes.—Six out of seven Higher College Students and one out of two Gold Coast Students successfully completed the course. A total of thirty-one Higher College Students have been awarded Diplomas to date and four Gold Coast Students have completed the Agricultural course. Four Higher College Students and six members of the Gold Coast Department of Agriculture entered the Diploma Class in January, 1946.

Agricultural Assistants.—Seven Assistants recruited in June, 1943 and thirteen in April, 1944, completed their second year of practical work and returned to the School for their final year. Seventeen Assistants, including two Field Overseers, recruited in January, 1945, completed their first year and were posted to out-stations for their second year, which consists of practical work. A new class of twenty-eight Assistants, including four Field Overseers, was recruited in January, 1946. There were altogether sixty-five Assistants at various stages of theoretical and practical training.

Field Overseers.—Ten Field Overseers from the Middle Belt completed their first year and were posted to the Northern Provinces for their second year of practical work.

SCHOOL OF AGRICULTURE, SAMARU

Eight Agricultural Assistants who entered the School in 1942 completed the course. They consisted of three Ibo, two Hausa, one Jukun, one Tiv and one Nupe. The class entered in 1943 was composed of seven students, of whom only one was a Northerner. Of the 1944 class ten students completed their first year's training and were posted to outstations for their year of practical work. Of these the appointments of three were ultimately terminated upon having failed the first year's examination. Thirteen students were recruited for the 1945, or first year course.

FARM SCHOOL, OYO

The only change of policy at the Oyo Farm School was the recruitment of a number of illiterate students in January, 1945. It will be interesting to compare the progress of these youths with that of boys of a higher educational standard. As the illiterate students, mostly sons of farmers, have been farming for most of their lives their aptitude for and interest in farm work is already fairly well established. It has therefore been decided to reduce the training period at the Farm School for these boys to one year. Varying progress has been made by these illiterate youths but all through the year they surpassed all the literate youths in farm technique and in good behaviour. They were more interested in their work and were all willing to finish an operation on the farm rather than work to the clock. It has yet to be seen, however, whether these illiterate boys will continue farming with increased efficiency when they again take up farming on their own.

The youths of the 1942 class have made varying progress during the year but the 1943 class has on the whole been disappointing. The 1944 class has so far shown the most satisfactory progress.

OIL PALMS

* OIL PALM RESEARCH STATION

16. For the earlier portion of the year there was only one Botanist stationed at the Oil Palm Research Station but in September it was possible to post a second Botanist there. A 200-acre planting programme was carried through. Losses in establishment continue to be fairly heavy and it is obvious that we have still much to learn regarding the best methods of transplanting palms.

Production of improved seed for distribution to farmers continued and the following quantities were made available:—

<i>Dura</i>	×	<i>Dura</i>	...	...	140,000
<i>Dura</i>	×	<i>Tenera</i>	...	...	113,000
<i>Dura</i>	×	<i>Pisifera</i>	...	...	112,000

					365,000

There is great demand for this improved seed. A separate report is issued in respect of the research work at the station.

PALM OIL MACHINERY

Oil presses are becoming increasingly popular in the Nnewi and South Awka areas of Onitsha Province. 283 presses were in operation during the year and the demand for new ones greatly exceeds the supply.

A site has been selected at Amuro near Okigwi for the first Pioneer Oil Mill to be erected by Government. Preliminary work on the site was started at the end of the year.

Palm Planting.—No propaganda to encourage palm planting was carried out, and there was a fall in planting as compared with the previous year. Figures for Owerri and Calabar Provinces are quoted:—

	<i>Owerri Province</i>			<i>Calabar Province</i>		
	<i>No. of Planters</i>	<i>Acreage</i>	<i>Nursery Seedlings sold</i>	<i>No. of Planters</i>	<i>Acreage</i>	<i>Nursery Seedlings sold</i>
1944	109	200	9,190	40	50	5,430
1945	59	128	5,078	26	25	1,359

FRUIT

17. There is an increasing demand in the Northern Provinces for cheap fruit, and the Department continued in 1945 to expand orchards and nurseries and to issue seedlings and budded plants of orange, tangerine, lime, grapefruit, mango and cashew. Dates are popular in some areas, and a small 10-acre Government plantation was established at Fika, and small plots in other parts of Bornu Province, where selection, cultivation, and spacing experiments are conducted.

Distribution of trees from Zaria took place as follows:—

	<i>Oranges</i>	<i>Tangerines</i>	<i>Grapefruit</i>
In Zaria Province	76	133	51
To other Provinces	314	91	142
	390	224	193

Distribution from Ibadan to all areas was as follows:—

	1944	1945
Budded citrus	457	2,927
Various other seedlings (not budded)	3,541	6,711
Grafted Mango	18	21
Total	4,016	9,659

RICE

18. In the Northern Provinces the imported varieties GC 79 and G.E.B. 24 continued to be popular with farmers. Extension work was devoted to distributing seed of these varieties by direct sale, or on condition of return of an equivalent amount of seed at harvest. Trials with small mills were continued at Badeggi and Baro. About 500 tons of hand-hulled rice was cleaned at these mills in 1945. In addition about 700 tons was purchased from the 1945 crop for milling in 1946. In Sokoto Province exceptionally heavy floods depressed yields considerably, but Government was able to purchase 485 tons of which 420 tons was taken out of the province. In Onitsha Province plantings were increased by about 23 per cent over 1944, to a total of about 7,360 acres. Intensive propaganda was carried out in Calabar Province to encourage rice planting, but with disappointing results, for the work involved is generally regarded there as being too laborious.

COTTON

NORTHERN PROVINCES

19. Growing conditions were good and purchases for export amounted to about 30,000 bales. Farmers have benefited from Departmental propaganda on methods

of planting and cultivation, and the general level of production is now high in the main cotton belt. Selected seed is issued annually, and the Botanical section has produced a further improved strain known as "26C".

It is now in its first year of multiplication at Daudawa, and the seed will receive its first general distribution in 1947. About 4,000 tons of Allen Cotton seed was distributed for planting. Of this, 1,061 tons was distributed in Zaria Province, and 896 tons in Katsina Province.

SOUTHERN PROVINCES

Production of cotton lint including cotton received from Abeokuta Province by the ginneries was as follows:—

BALES

				1944			1945		
				<i>Ishan</i>	<i>Native</i>	<i>Total</i>	<i>Ishan</i>	<i>Native</i>	<i>Total</i>
Oshogbo				1,842	2,357	4,199	1,562	252	1,814
Ibadan				1,834	8	1,842	782	—	782
				3,676	2,365	6,041	2,344	252	2,596

Output was very much less than in the previous year. During the buying season keen competition from local traders buying for the internal weaving industry was reported. The sale of seed was continued under the Ibadan Native Administration Cotton Suspense account, and distribution was as follows:—

1944	...	...	110,924 lbs
1945	...	...	119,609 lbs

Throughout the year considerable propaganda was carried out against the Pink Bollworm which is widespread in the province. Farmers were advised to clear up and burn all old plants and debris after harvest and all the Native Authorities passed orders making it an offence not to do so. Some opposition was encountered in areas where it is customary to grow yams after cotton and where the old stalks act as yam stakes. In general although the orders have been passed they have not been enforced, and the measure is unpopular among farmers.

GROUNDNUTS

20. There was no apparently significant change in the acreage sown, but the crop was planted in good time, and growing conditions were excellent. Very little rosette disease occurred, nor were there any major losses resulting from other diseases and pests. A crop of over 300,000 tons was purchased for export. In Daura Emirate of Katsina Province, 12,073 tons were sold for export. This is a record for the Emirate, and was said to be the highest tonnage per head of population in the groundnut areas. It is estimated that possibly 15,000 tons were consumed in Nigeria, or reserved for consumption.

In Kano Province 100 tons of "K. 38" groundnuts were distributed on a return at harvest basis. Smaller quantities of seed were distributed in other provinces. This improved strain, and "Castle Cary" were in good demand.

A yield survey carried out in Kano Province in 1944 was repeated in 1945. Yields were recorded from small plots sown in twenty-three districts by Agricultural Department staff, and yields from nearby plots planted by unsupervised peasant

owners were compared. The results showed the advantages to be gained from the close planting employed on departmentally supervised plots, the average increase for the twenty-three districts being 138 lbs per acre of decorticated nuts. The following gives a summary of average yields of decorticated nuts per acre:—

Southern Belt (South of a line Gwarzo - Birnin Kudu).

	1943	1944	1945
(a) Close planted	617	720	599
(b) Ordinary spacing	473	592	483

Middle Belt (South of a line Bichi—Gabasawa - Ringim Jahun).

	1943	1944	1945
(a) Close planted	544	543	735
(b) Ordinary spacing	502	536	585

Northern Belt (Danberta - Babura - Carke - Taura).

	1943	1944	1945
(a) Close planted	488	465	696
(b) Ordinary spacing	386	344	553

On Kano Government Farm 40 acres was used for the multiplication of improved seed, and the average yield amounted to 1,300 lbs decorticated nuts per acre. The average yield on the same farm in 1944 was 891 lbs.

In Yola Province samples of groundnuts stored in bulk and in bags during 1944-45 storage season were analysed. The results showed as in 1943-44 that bagged nuts are slightly superior in quality to the bulked nuts.

BENNISEED

21. It was a poor season for benniseed, and although yields were low, the season alone cannot be held to account for the poor crop. Undoubtedly far less was grown than in previous years, and much of that grown was neglected. The main reason for the neglect appears to be the considerable amount of money in the hands of the women as a result of allotments from the soldiers. It is estimated that £48,000 has been received directly or indirectly from the Army, and when it is seen that the Tax in Tiv, where most benniseed is grown is £40,000 approximately, then there is little inducement to grow an export crop.

In a farmyard manure experiment at Yandev the application of manure at 2 tons per acre gave highly significant increase results. Control or unmanured plots gave yields of 200 lbs seed per acre, whereas the average increase per acre for the manured plots was 104 lbs.

POTATOES

22. The pre-war importation of potatoes of about 500 tons per annum has now been replaced by potatoes grown in the Northern Provinces. It is estimated that production in 1945 amounted to well over 1,000 tons. The Department continued to distribute new seed on repayment at harvest time. Government farms played an important part in testing and multiplying new imported seed, for it is necessary to introduce new seed from the United Kingdom periodically.

A subsidiary industry is the production of baskets. No less than 18,797 baskets were obtained from Kajuru for the transport of potatoes.

GUINEA CORN AND MILLET

23. It is estimated that the 1945 crop of guinea-corn was 10 per cent to 20 per cent better than that of 1944. Of the chief millet growing provinces Benue and Bornu enjoyed above average harvests. Kano, Daura, Sokoto and South Katsina

harvested average crops, whilst Zaria and North Katsina fell below normal. In Sokoto Province some 1,200 tons were requisitioned by the Administration, and of this 840 tons were taken out of the province.

SOYA BEANS

24. Many varieties have been under test at Northern Province stations, the most promising varieties are "Benares" and "Malaya". At Samaru 34 acres were grown, twenty-two for export trials, and twelve for seed multiplication. Yields were as follows:—

Average yields of threshed beans per acre

Trinidad	Benares	Malaya
398 lbs	706 lbs	579 lbs

A trial plot of "Dixie" yielded 535 lbs per acre.

GINGER

25. Forty tons of improved yellow ginger was purchased by Firms for export from Southern Zaria districts. The production of ginger continued to expand in these districts; and annually several hundred tons are sold in local markets all over Nigeria and in French territories. A promising strain of yellow ginger was imported from Australia, and is under observation.

VEGETABLES

26. In Kano more than £100 worth of imported seed was sold to growers of vegetables. The trade in Kano, Jos and Zaria has expanded greatly, and hundreds of tons of vegetables grown by market gardeners were railed to the Southern Provinces in 1945. Every encouragement is given to Africans to develop market gardening. Advice is given to growers upon the best seeds to buy, and they are assisted in marketing.

SUGAR

27. The village crushing units continued to work at high pressure to meet a large demand by Africans for brown sugar. It is estimated that at least 1,500 tons were produced from the 160 crushers in operation in the Northern Provinces, and that 1,200 tons of this was produced in Zaria Province. It has been observed that cane planting increases rapidly wherever crushers are established. There are now twenty-two crushers in operation in Kano Province and it is estimated that 118 tons was produced in the first fourteen weeks of the 1945-46 crushing season. Most of this was sold to local traders at £56 per ton. The demand for crushers is acute, and several prospective owners have paid a deposit of £5 each in advance pending removal of restrictions upon the export of these crushers from India. Extension work by departmental staff consisted of advice on method of preparation of sugar, and care of machinery, equipment and horses.

PRODUCE INSPECTION AND MARKET INFORMATION

28. The Produce Inspection Branch continued its full programme throughout 1945 in spite of shortage of European supervisory staff. Some areas were without an Inspector of Produce throughout the year while other areas were in charge of Inspectors during the main season only. The Department continued to receive and collate returns from the export firms in connection with the various Control Schemes but, due to pressure of work in the Lagos office, arrangements were made towards

the close of the year for these duties to be taken over by the Supply Board. The branch continued the collection of marketing information for the Chief Marketing Officer.

The Main Crop cocoa season opened on 5th October, 1945, and grading finished on 28th March, 1946. The season was later than usual and marketing was not in full swing until towards the end of December, 1945. The result was that gradings in January, February and March, 1946, were the highest recorded since the commencement of Produce Inspection in 1926. The naked ex-scale port of shipment price was fixed for the season at £27 10s for Grade I and £26 for Grade II. Gradings for the year, 1945-46, amounted to 95,189 tons as compared with 85,399 tons in the previous year. The increase of approximately 10,000 tons is notable but the crop was well below the record of 113,640 tons in 1942-43. The premium of 30s per ton for Grade I cocoa was reflected in increased quantities being produced, the percentage of Grade I being 26.47 per cent. This compares with 26.42 per cent in 1944-45 when a similar premium held and 16.58 per cent and 16.16 per cent in 1943-44 and 1942-43 when the premium was 10s only. The general degree of fermentation remained similar to that of the previous season but the general appearance of the cocoa was not as good as in previous years. The Light Crop was the lowest recorded—691 tons—and was due to a short crop, lack of interest following several years of low prices for Light Crop cocoa, and holding for mixing with Main Crop.

The groundnut season opened on 2nd November, 1945 and, following good growing conditions, the crop amounted to 301,699 tons for Nigeria, *i.e.* the Kano and Riverain Areas. This was the biggest crop since the 1936-37 season. The tonnage purchased for export in 1944-45 was 228,000 tons. The price was fixed at £12 per ton for all buying stations on the Railway, with a minimum of £9 per ton at station off rail. No inspection difficulties were experienced, the average impurity content being 0.234 per cent as compared with 0.273 per cent in 1944-45. The main difficulty during the season was the inability of the Railway to move the large tonnage purchased, to port; and storage accommodation in the north is insufficient for stocks which could not be railed before the commencement of the 1946 rains. There was no alternative to temporary storage, which was done by building plinths and stacking the bags on these in the form of pyramids. The pyramids, each of which contains approximately 600 tons of groundnuts, are covered with tarpaulins and closely battened down. It is too early to state if this method of storage will prove satisfactory.

Palm Kernel production in 1944-45 was disappointing, 283,471 tons being graded for export. This compares with 330,764 tons in 1944-45 and 330,647 tons in 1943-44. Gradings were the lowest since the 1938-39 season excluding 1940-41 when there was a prohibition of purchase of kernels for export in some districts in the Western Provinces. Various reasons have been given for the decreased production and it is probably due to a combination of various factors of which the main one was a poor season. The quality of the produce was maintained, and no difficulty was experienced in grading. The minimum price for Palm Kernels delivered ungraded and unbagged to a shipper or to a shipper's commission buying agent at Lagos was £8 14s per ton from April to December, 1945, and £10 14s per ton from January to March, 1946.

As with Palm Kernels, Palm Oil showed decreased production, the tonnage graded being 110,230 tons as compared with 139,464 tons in 1944-45 and 134,664

tons in 1943-44. Gradings in the year under review were the lowest since Produce Inspection was extended to cover the Southern Provinces in 1928. The decreased production was due to several factors including a poor season and increased local consumption. Although Palm Oil was not purchased for export at Lagos, the following prices were offered, these being given as a guide to prices in general:—

<i>Grade</i>	<i>F.F.A. content</i>	<i>April to December, 1945</i>	<i>January to March, 1946</i>
	<i>per cent</i>	<i>£ s d</i>	<i>£ s d</i>
I	0.9	12 16 6	16 6 6
II	over 9.18	11 16 6	15 6 6
III	over 18.27	10 6 6	14 6 6
IV	over 27.36	9 11 6	13 11 6
V	over 36	8 6 6	12 6 6

The Department continued to grade for impurity content only and the work was conducted smoothly throughout the year. The firms tested the oil for F.F.A. at time of purchase, and report the percentages of the various grades as follows as compared with the previous year:—

<i>Grade</i>	<i>1945-46</i>	<i>1944-45</i>
	<i>per cent</i>	<i>per cent</i>
I	60	55
II	17	19
III	13	14
IV	8	10
V	2	2

The cotton crop in the Northern Provinces for 1945-46 is estimated to be 33,007 bales of 400 lbs lint, and compares with 12,309 bales in 1944-45. The season was satisfactory throughout and grading continued normally. At the commencement of the season there was competition from the internal market but that market was satisfied by approximately the middle of January, 1946. The price at ginneries was raised from 1½d per lb, Zaria, Funtua and Gusau ginneries, and Mallamfashi and Mai-inchi ginneries in 1944-45, to 2½d per lb at all ginneries in 1945-46. The crop was satisfactory as regards quality, 95.1 per cent of the cotton passing as Grade I and 4.9 per cent as Grade II, comparative figures for 1944-45 being 93 per cent and 7 per cent respectively. Final ginning percentages are estimated to be:—

	<i>Per cent</i>
Zaria	33
Funtua	32
Mallamfashi	31
Gusau	31.49

In the Southern Provinces, the crop in 1945 was disappointing, 2,596 bales of 400 lbs lint only being produced as compared with 6,041 bales in the previous year.

There was an improvement in the quality as shown by the following figures:—

<i>Grade</i>	<i>1944</i>	<i>1945</i>
	<i>Per cent</i>	<i>Per cent</i>
IN 1	2.3	7.2
IN 2	28.6	79.1
IN 3	29.1	3.1
NN	40.0	10.6

The following prices per cwt. were paid at ginneries during the 1945 season as compared with 1944:—

<i>Grade</i>	<i>1944</i>	<i>1945</i>
	s d	s d
IN 1	14 0	17 6
IN 2	12 10	15 2
IN 3	11 8	12 10
NN	10 6	10 6

The prohibition of export of Cassava Starch continued throughout 1945.

Potato grading continued to function smoothly and the introduction of the Potato (Marketing and Export) Regulations, 1942, has resulted in a better product reaching the consuming markets. Production decreased in 1945-46, gradings amounting to 859 tons as compared with 1,585 tons in 1944-45 and 1,458 tons in 1943-44. Advertised prices at markets during the year were 4d-4½d per lb in April, 5d-5½d in June, 6d in July and August, 2½d in September, 1½d in October-February and 2d per lb in March. As the trade is now entirely in the hands of middlemen, it is impossible to state what price is received by the farmer.

Rubber purchases in 1945-46 amounted to 10,409 tons. Plantation rubber and 35 tons Wild. This compares with 8,703 tons and 742 tons in 1944-45 respectively. Both the increase in Plantation and decrease in Wild were anticipated, the former being due to new plantations coming into bearing, and the latter as wild rubber is becoming played out after having served an extremely useful purpose during the war. Although some difficulties were experienced on the whole the work of grading continued smoothly as Examiners became more accustomed to the various grades. The following table indicates the quality of rubber graded as compared with 1944-45:—

PLANTATION RUBBER

<i>Year</i>	<i>Sheet</i>			<i>Scrap</i>	
	AI	AII	AIII	CI	CII
	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>
1944-45	29.92	40.97	2.13	0.55	26.43
1945-46	16.82	43.92	8.94	0.93	29.39

CREPE RUBBER

<i>Year</i>	BI	BII
	<i>per cent</i>	<i>per cent</i>
1944-45	15.62	84.38
1945-46	7.14	92.86

WILD RUBBER

Year	Sheet		Rope and Flat Cake		Scrap			Flake	
	AI	AII	AI	AII	CI	CH	CHH	DI	DII
	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>
1944-45	17.26	6.35	0.60	0.40	60.31	8.53	5.95	0.40	0.20
1945-46	17.97	7.70	0.29	—	46.22	9.13	17.12	0.14	1.43

The past year saw the introduction of the Capsicum (Inspection for Export) Regulations, 1945, and apart from a few preliminary difficulties, grading proceeded smoothly. Under the regulations there are two classes of capsicums (*a*) Nigerian Birdseye Chillies and (*b*) Ordinary Nigerian Capsicums. The first class is graded into three separate qualities and the latter into two. Nigerian Birdseye Chillies must be grown from seed supplied by the Agricultural Department and production is concentrated in the Oyo district. A small tonnage was grown round Ifhugh and Gboko in the Benue Province but this is to be discontinued leaving the Oyo Province as the production centre. At the commencement of the season, Class I Grade I were marketed and an excellent product was obtained, *i.e.*, deep red, plump chillies. Towards the middle of the season, the deep red colour was difficult to obtain and provision was made for an intermediate grade permitting the combination of deep red and bright red. Later, as the quality further deteriorated due to climatic conditions, the export of ungradable Nigerian Birdseye Chillies under special licence was permitted to assist the farmers who had unsaleable stocks on hand. A condition was made that the produce should not be sold on the open market as Nigerian Birdseye Chillies. The main grading of Ordinary Chillies took place at Funtua in the Northern Provinces though grading was carried out in various stations. The quality standard introduced was higher than that of pre-inspection days and this led to initial difficulties. That the departmental standards were correct was confirmed by submitting samples of Capsicums through the Imperial Institute to representatives of the consuming trade. The latter reported that chillies of the quality insisted upon under the Regulations would meet a ready demand whereas those of the standard as sold by the farmers to the exporting firms, would be unsaleable in the United Kingdom. During the 1945-46 season, 199 tons Nigerian Birdseye Chillies were graded; and 407 tons Ordinary Chillies and 43 tons Nigerian Birdseye Chillies were exported under special licence. Average prices were as follows:—

				£	s	d
Class I	Grade I	..	..	75	0	0
"	I	"	II	65	0	0
"	I	"	III	25	0	0
"	II	"	I	—		
"	II	"	II	37	6	8 to £65 6s 8d

Ginger.—No control scheme was imposed upon the purchase of 1946 crop. Buying licences were issued to two firms only. The prices paid were the same as last year, namely 6d per lb for Grade I and 4d per lb for Grade II. At the first Kachia and Zonkwa markets the percentages of Grade II was higher than usual.

probably due to lack of supervision during curing. There was offered also a considerable quantity of ginger which had been adulterated with flour to disguise insufficient washing. There was a definite improvement at the second markets. The tonnages graded were:--

Yellow Grade I	..	..	..	..	25 tons
" " II	...	...	...	...	8 "

No white ginger was purchased for export.

The Department continued the unofficial inspection of rice, fibre, shea nuts and sugar during the year. Parcels of other products such as maize (imported and local), guinea cubebs, cowpeas, etc., were examined for other Departments and the firms upon request.

July, 1946.

GP LAGOS
1243/948/680